



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,276	07/18/2003	Hagay Cafri	7962 USA/CPI/ALD/PS	4203

7590 01/24/2006
Patent Counsel, MS/2061
Legal Affairs Dept.
Applied Materials, Inc.
P. O. Box 450A
Santa Clara, CA 95052

EXAMINER

SAYOC, EMMANUEL

ART UNIT PAPER NUMBER

3746

DATE MAILED: 01/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/622,276	CAFRI ET AL.	
	Examiner	Art Unit	
	Emmanuel Sayoc	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-21, 28 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 28 and 29 is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/17/05, 7/18/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the amendments of 11/17/2005. In making the below rejections and/or objections the examiner has considered and addressed each of the applicants arguments. Claims 1-10, 12-21, 28, and 29 are pending and are under current consideration. Claims 1, 4-10, 12, 16, 20, 21, and 28 are amended. Claims 11, and 22-27 have been cancelled.

Drawings

2. The objections to Figures 1 and 2 are hereby withdrawn in view of replacement figures filed 11/17/2005.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claims 1-10, and 12-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 line 11 the phrase "said surface" is ambiguous as it is unclear what surface is being referenced.

In claims 5, 6, and 8, if a component has two ends, how are they both distal?
Applicant is instructed to clarify how a component is referenced as distal – what is it distal to?

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claim 1-4, 18, 19, 22, 23, 24, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Adamietz et al. (U.S. 6,814,550 B1).

In Figure 2, Adamietz et al. teach a gas turbo pump assembly for coupling to a chamber port (14) comprising a turbo pump (1) having a pump body (2) with an external

Art Unit: 3746

surface (shown not enumerated) and a center axis that defines a first axial end (top) and a second axial end (bottom) of the pump (1), and a pump inlet port (5). The pump inlet port (5) is disposed at the first axial end of the pump (1) and is coupled to the chamber port (14). The pump (1) includes an exit port (not shown, column 2 line 6) disposed proximate to the second axial end of the pump (1). A vibration damping assembly (7, 8, 9, 17,18) is disposed to enclose a significant portion of the pump body (2) in a nested arrangement. The vibration damping assembly (7, 8, 9, 17,18) has a first opening (shown at the top of the assembly) adapted for coupling to the inlet port (5) of the pump, and a second opening adapted to receive a substantial portion of the pump (1). The vibration damping assembly (7, 8, 9, 17,18) comprises a first nested structure (8) having an outer peripheral surface (see outer surface of 8) and an inner peripheral surface (see inner surface of 8). The inner peripheral surface (see inner surface of 8) is disposed around and adjacent to the external surface (outside of 1) of said significant portion of the pump body (1). A second nested structure (9) having an inner peripheral surface (see inner surface of 9), the inner surface (see inner surface of 9) is disposed around and is adjacent to the outer peripheral surface (outside of 8) of the first nested structure (8).

The turbo pump is coupled to a reducing section (23), which is a rigid mounting structure at the pump inlet port (5) via the vibration damping assembly (7, 8, 9, 17, 18).

The vibration damping assembly (7, 8, 9, 17,18) is coupled between the rigid mounting structure (23) and a first coupling portion (flange 24) at the first axial end of

Art Unit: 3746

the pump (1), and a second coupling portion (flanges 17,18) on the pump body (2) disposed between the first axial end and the second axial end of the pump.

The second coupling portion (24) comprises a radially extended structure integrally formed (rigidly connected to for one rigid assembly) on the body (2).

The vibration damping assembly (7, 8, 9, 17,18) comprises a first connection structure (7) being a flexible damping structure having a first end (top) and a second end (bottom), and is coupled between the rigid mounting structure (23) at the first end and the pump (1) at the second end.

The vibration damping assembly further comprises a second rigid connection structure (rotor and shaft assembly 3) that is a rigid structure having a first end (top) and a second end (bottom).

The vibration damping assembly (7, 8, 9, 17,18) further comprises a second flexible connection structure (8) having a first end (top) and a second end (bottom) coupled between the pump (1) at said first axial end and the second end of the first connecting structure (7) at said second end of the second connection structure (8). Both the first connection structure (7) and the second flexible connection structure (8) are flexible and are adapted to reduce both compression and extraction forces.

The first coupling portion (24) comprises a ring extended around the body (2).

The second coupling portion comprises a plurality of flanges (18, 17) disposed around the body (2).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claim 1, 5, 7-10, 12-21, and 29 rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (Figures 1 and 2), hereinafter (APA), and in view of Adamietz.

In Figures 1 and 2 of the APA, a gas turbo pump assembly (100) for coupling to a chamber port (180) comprising a turbo pump (100) having a pump body (shown not enumerated) with an external surface (shown not enumerated) and a center axis (C) that defines a first axial end (top) and a second axial end (bottom) of the pump (100),

and a pump inlet port (162). The pump inlet port (162) is disposed at the first axial end of the pump (100) and is coupled to the chamber port (180). The pump (100) includes an exit port (104) disposed proximate to the second axial end of the pump (100). A vibration damping assembly (150, 153, 160, 170) is disposed to between the inlet (162) and the chamber port (180). The vibration damping assembly (7, 8, 9, 17,18) comprises a first nested structure (8) having an outer peripheral surface (see outer surface of 8) and an inner peripheral surface (see inner surface of 8). The inner peripheral surface (see inner surface of 8) is disposed around an adjacent to the external surface (outside of 1) of said significant portion of the pump body (1). A second nested structure (9) having an inner peripheral surface (see inner surface of 9), the inner surface (see inner surface of 9) is disposed around and is adjacent to the outer peripheral surface (outside of 8) of the first nested structure (8).

The applicant's admitted prior art differs from the claimed invention in that there is no teaching of the vibration damping assembly being disposed to enclose a significant portion of the pump body in a nested arrangement.

Adamietz et al. in Figure 2, teaches an analogous vacuum pump (1) with a vibration damping assembly (7, 8, 9, 17, 18). As seen in Figure 2, vibration-damping assembly (7, 8, 9, 17, 18) is disposed to enclose a significant portion of the pump body in a nested arrangement to drastically reduce the total height of the pump assembly and achieve a compact design (column 2 lines 53-57). Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the APA (Figures 1 and 2) device by, incorporating the nested arrangement of the vibration

Art Unit: 3746

damping assembly, as taught by Adamietz et al., in order to advantageously reduce the total height of the pump assembly and achieve a compact design. While preserving the structure taught by the APA Figure 2, in order to achieve this combination, it would have been obvious that the vibration damper in the APA needs to be enlarged radially to accommodate a substantial portion of the pump (100) as suggested by Adamietz et al. Figure 2. Furthermore it would have been obvious then that the bottom end of the vibration damper assembly needs to be anchored to the mid section of the pump body, as taught by Adamietz et al. in Figure 2.

The pump (APA 100) is coupled to a rigid mounting structure (APA 170, 180) at the pump inlet port (within 180) via the vibration damping assembly (150, 151, 153, 160, 170).

The vibration damping assembly (APA 150, 151, 153, 160, 170) is coupled between the rigid mounting structure (APA 170, 180) and a first coupling portion (APA 170, 180) at the first axial end of the pump (APA 100), and a second coupling portion (APA 102, 151a, 160) on the pump (APA 100) body disposed between the first axial end and the second axial end of the pump (APA 100).

The second coupling portion (APA 102, 151a, 160) comprises a radially extended structure (APA 102) integrally formed on the body.

In the combination, the vibration damping assembly (APA 150, 151, 153, 160, 170) comprises a first connection structure (APA 150) being a flexible damping structure having a first end (top) and a second end (bottom), and is coupled between the rigid

Art Unit: 3746

mounting structure (APA 170, 180) at the first end and the pump (APA 100) at the second end.

In the combination, the vibration damping assembly (APA 150, 151, 153, 160, 170) further comprises a second rigid connection structure (APA 151b) that is a rigid structure having a first end (top) and a second end (bottom). The second rigid connection structure (APA 151b) is coupled between the pump (APA 100) at the first pump inlet end and the first end of the first connecting structure (APA 150) at the second end of the second rigid connection.

The vibration damping assembly (APA 150, 151, 153, 160, 170) also comprises a flexible bellows (APA 153) exposed to atmospheric pressure.

In the combination the vibration damping assembly (APA 150, 151, 153, 160, 170) further comprises a second flexible connection structure (APA 153) having a first end (top) and a second end (bottom) coupled between the pump (APA 100) at said first axial end and the second end of the first connecting structure (APA 150) at said second end of the second flexible connection structure (APA 153). Both the first connection structure (APA 150) and the second flexible connection structure (APA 150) are flexible and are adapted to reduce both compression and extraction forces.

In the combination the vibration damping assembly (APA 150, 151, 153, 160, 170) comprises a first connection structure (APA 151a, and b) and a second connection structure (APA 153). The first connection structure (APA 151a, and b) is a rigid support structure having a first end and a second end, and is coupled between a rigid mounting structure (APA 170, 180) at the first end and the second connection structure (APA 153)

at the second end. The second connection structure (APA 153) is flexible and coupled between the pump (APA 100) at said first axial end and the first connection structure (APA 151a).

In the combination above, the exit port (APA 104) is disposed proximate the second axial end of the pump (APA 100). As not to hinder the function of the vibration damping assembly it would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the vibration damper assembly to not cover the exhaust port (APA 104).

The body (APA shown not enumerated) external surface further comprises an axial portion defining a side surface and an end portion (side wall and bottom of the pump body). The end portion is substantially radially extended from the center axis (APA C) to the axial portion and defining a bottom portion (APA 105) adapted for receiving facilities connections (APA 110).

The pump facilities (APA 110) connected through the bottom portion (APA 105) comprises at least an electrical connection.

With respect to the span of the significant portion being between 50% and 70% of an external side surface of the body, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. v. Coe, 69 App. D.C. 217, 99 F.2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App. D.C. 324, 135 F.2d 11, 57 USPQ 136..

The vibration damping assembly (APA 150, 151, 153, 160, 170) defined by the first connection structure (APA 150) and the second connection structure (APA 153) is substantially cone shaped.

The first coupling portion (APA 170) comprises a ring extended around the body.

The second coupling portion (APA 160, 151a) comprises a plurality of flanges (APA 151a, 102) disposed around the body.

Allowable Subject Matter

10. Claims 28 and 29 are allowed.
11. Claim 6 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Amendment

12. The rejections of claims, 1-10, 12-21, 28, and 29, under 35 U.S.C. 112 2nd paragraph are hereby withdrawn in view of applicants amendments.

New rejections have been made in view of applicant's amendments.

Response to Arguments

13. Applicant's arguments with respect to claims 1-10, 12-21 have been considered but are moot in view of the new ground(s) of rejection.

The rejections have been modified to incorporate the applicant's new limitations.
See above.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to further show the state of the art with respect to pump vibration dampers.

U.S. Pat. 6,899,529 B2 to Ishikawa et al., 4,835,972 to Tugal et al., 6,867,521 B2 to Beyer et al., and 6,575,713 B2 to Ohtachi et al. – teach analogous vacuum pumps as in the claimed invention with vibration dampeners similar to the applicants admitted prior art.

U.S. Pat. 6,619,911 B1 to Englander et al., 4,363,217 to Venuti, 4,526,015 to Laskaris, and 4,352,643 to Iijima, teach various vacuum pumps and various means of vibration damping.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

Art Unit: 3746

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Sayoc whose telephone number is (571) 272 4832. The examiner can normally be reached on M-F 8-5pm.

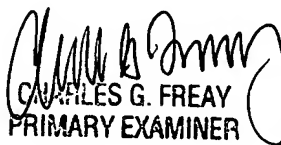
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on (571) 272-4444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Emmanuel Sayoc
Examiner
Art Unit 3746

ECS



CHARLES G. FREAY
PRIMARY EXAMINER